

Recovery Plan Action Status

Plan Name: Little Colorado Spinedace

Plan Status: Final

Plan Date: 09-Jan-98

Lead Agency: USFWS

Lead Office: Arizona Fish And Wildlife Conservation Office-pinetop

(928)

367-1953)

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Little Colorado spinedace (Lepidomeda vittata)	1	1.0.1	Complete NEPA for C.C. Cragin Reservoir Renovation	Ongoing Current	FY 2010	FY 2011	Arizona Department of Game and Fish, U.S. Forest Service, Private groups, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Management: Planning	Internal Field Assistance, Internal Technical Assistance, Species Expert, Volunteer	Identified as priority action in 2010 Action Plan.
Little Colorado spinedace (Lepidomeda vittata)	1	1.0.2	Implement C.C. Cragin Reservoir Renovation.	Not Started	FY 2011	FY 2014	Arizona Department of Game and Fish, U.S. Forest Service, Private groups, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Management: Predator and Competitor Control	Internal Field Assistance, Internal Technical Assistance, Species Expert	Identified as a priority action in 2010 Action Plan.
Little Colorado spinedace (Lepidomeda vittata)	1	1.0.3	Begin planning and initiate NEPA for renovation of upper Chevelon Creek.	Ongoing Current	FY 2010	FY 2014	Arizona Department of Game and Fish, U.S. Forest Service, Private groups, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Management: Planning	Internal Field Assistance, Internal Technical Assistance, Species Expert	Identified as priority action in 2010 Action Plan. Have been working to set-up a meeting with Arizona Game and Fish to develop initial plan outline. Plan is to meet in October/November 2010 (soonest AGFD can meet).

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Little Colorado spinedace (Lepidomeda vittata)	1	1.1	Prioritize populations for protection needed.	Complete	FY 2000 - FY 2004	FY 2000 - FY 2004	Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Research: Population Surveys	Labor type not yet selected	We prioritized populations for protection at the 7/29/03 Recovery Team Meeting and continue to evaluate this ranking on a yearly basis.
Little Colorado spinedace (Lepidomeda vittata)	2	1.2.1.1	Develop refugium above Blue Ridge Reservoir	Ongoing Current	FY 1995 - FY 1999		Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Management: Habitat Maintenance and Manipulation	Labor type not yet selected	Per the East Clear Creek Recovery Strategy, we continue to stock spinedace in Bear, Dane, and Yeager Canyons to try to develop a secure population. However, drought continues to impact these sites (e.g., pools drying).
Little Colorado spinedace (Lepidomeda vittata)	2	1.2.2	Develop refugium below Blue Ridge Reservoir	Not Started			Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Management: Habitat Maintenance and Manipulation	Labor type not yet selected	
Little Colorado spinedace (Lepidomeda vittata)	2	1.2.2	Develop refugium in Silver Creek Drainage	Not Started			Arizona Department of Game and Fish, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Management: Habitat Maintenance and Manipulation	Labor type not yet selected	

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Little Colorado spinedace (Lepidomeda vittata)	2	1.2.3	Develop refugium in Rudd-Nutrios Creek Drainage	Not Started			Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Management: Habitat Maintenance and Manipulation	Labor type not yet selected	Note (not in plan): Added agencies to whom this is also a responsibility (AZFRO & AZESFO).
Little Colorado spinedace (Lepidomeda vittata)	2	1.2.4	Develop refugia in Chevelon Creek	Ongoing Current	FY 2007		Arizona Department of Game and Fish, U.S. Forest Service, Private groups, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Management: Habitat Maintenance and Manipulation	Internal Administrative	Note (not in plan): Added agencies to whom this is also a responsibility (AZFRO & AZESFO). On July 23, 2007, AGFD stocked spinedace in West Chevelon Creek.
Little Colorado spinedace (Lepidomeda vittata)	2	1.2.5	Maintain refugium at Flagstaff Arboretum	Ongoing Current	FY 1995 - FY 1999		Arizona Department of Game and Fish, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Management: Habitat Maintenance and Manipulation	Labor type not yet selected	FY4-FY10 = \$70,000 Note (not in plan): Added agencies to whom this is also a responsibility (AZESFO & AZGF). We are having issues with the mangagement of this refugium site and may not manage it into the future. Working with AGFD to develop another site at Raymond Ranch which will likely be completed in FY2011. This site may replace the Arboretum site.

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Little Colorado spinedace (Lepidomeda vittata)	2	1.2.6	Develop refugium in Little Colorado River	Ongoing Current	Prior to FY 1995		Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Management: Habitat Maintenance and Manipulation	Labor type not yet selected	AGFD manages two properties along the Little Colorado River that contain spinedace (Wenima and Becker Wildlife Areas). Though these are not entirely protected sites, they do aid in protecting the habitat area for the spinedace.
Little Colorado spinedace (Lepidomeda vittata)	1	1.3	Acquire and protect land and water rights	Ongoing Current	FY 2000 - FY 2004		Arizona Department of Game and Fish	Acquisition: Management Agreement	Labor type not yet selected	In addition to funds required under task 1.2. Date indicates when AGFD purchased Wenima Wildlife Area. Sipe White Mountain Area purchased on 10/08/1993 and Grasslands Wildlife Area purchased on 06/25/1999.
Little Colorado spinedace (Lepidomeda vittata)	2	1.3.1	Purchase of base property for Buck Springs Range Allotment by Arizona Game and Fish Department.	Complete	FY 2008	FY 2010	Arizona Department of Game and Fish, U.S. Forest Service, Private groups, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Acquisition	Internal Administrative, Internal Technical Assistance	Identified as a priority action in the 2010 Action Plan.
Little Colorado spinedace (Lepidomeda vittata)	1	1.4.1	Inform agencies/individuals of responsibilities/opportunities	Ongoing Current	FY 2000 - FY 2004		Arizona Department of Game and Fish, U.S. Fish and Wildlife Service, Law Enforcement Division, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Other: Information and Education	Labor type not yet selected	Ongoing and within budget

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Little Colorado spinedace (Lepidomeda vittata)	1	1.4.2	Ensure compliance with Section 7 and 9 of the Endangered Species Act	Ongoing Current	Prior to FY 1995		Arizona Department of Game and Fish, U.S. Fish and Wildlife Service, Law Enforcement Division, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Other: Law Enforcement	Labor type not yet selected	Ongoing and within budget
Little Colorado spinedace (Lepidomeda vittata)	1	1.5.1	Ensure fish stocking plans are consistent with recovery plan goals and objectives	Ongoing Current	FY 2007		Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Other: Regulations	Labor type not yet selected	Ongoing and within budget. AGFD is reinitiating with FWS on their statewide sportfish stocking plan.
Little Colorado spinedace (Lepidomeda vittata)	2	2.1	Identify habitats	Ongoing Current	FY 1995 - FY 1999		Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Research: Habitat Requirements	Labor type not yet selected	Note (not in plan): Added agency to whom this is also a responsibility (AZESFO).
Little Colorado spinedace (Lepidomeda vittata)	1	2.2.1	Remove non-native fish in areas where continued spinedace survival is threatened	Ongoing Current	FY 2008		Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Management: Predator and Competitor Control	Labor type not yet selected	Note (not in plan): Added agency to whom this is also a responsibility (AZESFO). Working with AGFD, FS, SRP, and Phelps Dodge to try to renovate C.C. Cragin(Blue Ridge Reservoir).

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Little Colorado spinedace (Lepidomeda vittata)	1	2.2.2	Install barriers to prevent introduction of non-native species	Ongoing Current	FY 2006		Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Management: Predator and Competitor Control	Labor type not yet selected	FY4-FY5 =\$30,000. Note (not from plan): Cost estimate is too low to pay for even one barrier. Minimum cost is \$100,000.
Little Colorado spinedace (Lepidomeda vittata)	2	2.3	Manage ecosystems to enhance biodiversity of native species	Ongoing Current	FY 1995 - FY 1999		Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Management: Habitat Maintenance and Manipulation	Labor type not yet selected	FY4-FY10 =\$52,500 Attempting to do this in the ECC Watershed per the Recovery Strategy and ECC Watershed Health Project.
Little Colorado spinedace (Lepidomeda vittata)	2	3.0.1	Stock spinedace in Kehl Canyon, Beaver Creek, Gentry Creek, Turkey Creek, and Willow Creek.	Ongoing Current	FY 2010	FY 2016	Arizona Department of Game and Fish, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Management: Identify/Protect Foraging, Breeding and Mig Habitats, Management: Reintroduction	Internal Field Assistance, Internal Technical Assistance, Species Expert	Identified as priority action in 2010 Action Plan.
Little Colorado spinedace (Lepidomeda vittata)	2	3.1.1	Identify areas for reintroduction	Ongoing Current	FY 1995 - FY 1999		Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Management: Habitat Maintenance and Manipulation	Labor type not yet selected	Note (not in plan): Added agency to whom this is also a responsibility (AZESFO).

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Little Colorado spinedace (Lepidomeda vittata)	2	3.1.2	Remove non-native competitors/predators	Ongoing Current	FY 2008		Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Management: Predator and Competitor Control	Internal Technical Assistance	Note (not in plan): Added agency to whom this is also a responsibility (AZESFO). Worked with Grand Canyon Wildlands Council, AGFD, FS and many volunteers to remove crayfish from Dines Tank (occupied spinedace habitat in Leonard Canyon).
Little Colorado spinedace (Lepidomeda vittata)	1	3.1.2.1	Begin development of novel pesticides for control of nonnative fish and crayfish.	Ongoing Current	FY 2010	FY 2016	Arizona Department of Game and Fish, U.S. Forest Service, Private groups, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Research	Contract, Internal Field Assistance, Internal Technical Assistance, Species Expert	Identified as priority action in 2010 Action Plan. Working with Bureau of Reclamation and USGS to find funding to move proposal forward.
Little Colorado spinedace (Lepidomeda vittata)	2	3.1.3	Prevent reentry of non-native competitors/predators	Not Started			Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Management: Predator and Competitor Control	Labor type not yet selected	FY4-FY10 = \$17,500 Note (not in plan): Added agency to whom this is also a responsibility (AZESFO).
Little Colorado spinedace (Lepidomeda vittata)	2	3.1.4	Reintroduce Spinedace	Ongoing Current	FY 2000 - FY 2004		Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Management: Reintroduction	Labor type not yet selected	FY4-FY7 = \$12,000 Note (not in plan): Added agency to whom this is also a responsibility (AZESFO).

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Little Colorado spinedace (Lepidomeda vittata)	2	3.1.5	Monitor success of reintroduction	Ongoing Current	FY 2000 - FY 2004		Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Management: Other	Labor type not yet selected	FY4-FY7 =\$14,000
Little Colorado spinedace (Lepidomeda vittata)	2	3.1.6	Determine status of reintroduction	Ongoing Current	FY 2000 - FY 2004		Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Management: Other	Labor type not yet selected	FY7=2,000 and FY10=2,500
Little Colorado spinedace (Lepidomeda vittata)	1	3.2.1.1	Develop genetic pedigree	Ongoing Not Current	Prior to FY 1995		U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Research: Taxonomic Studies	Labor type not yet selected	
Little Colorado spinedace (Lepidomeda vittata)	1	3.2.1.2	Maintain maximum genetic variability	Ongoing Not Current	FY 1995 - FY 1999		Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Research: Taxonomic Studies	Labor type not yet selected	FY4-FY10 =\$7,000
Little Colorado spinedace (Lepidomeda vittata)	2	4.1	Establish and implement monitoring for extant location	Ongoing Current	Prior to FY 1995		Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Research: Population Surveys	Labor type not yet selected	FY10=1,000
Little Colorado spinedace (Lepidomeda vittata)	2	4.2	Establish and implement standard sampling procedures and techniques	Not Started			Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Research: Population Surveys	Labor type not yet selected	FY4-FY10 =\$35,000
Little Colorado spinedace (Lepidomeda vittata)	2	4.4.1	Develop methods to quantify abundance	Not Started			U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Management: Other	Labor type not yet selected	

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Little Colorado spinedace (Lepidomeda vittata)	1	5.1.1	Examine direct interactions with other species	Ongoing Not Current	Prior to FY 1995		Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Research: Predation	Labor type not yet selected	
Little Colorado spinedace (Lepidomeda vittata)	1	5.1.2	Examine indirect interaction with other species	Ongoing Not Current	Prior to FY 1995		Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Research: Predation	Labor type not yet selected	
Little Colorado spinedace (Lepidomeda vittata)	2	6.1.1	Determine self-sustaining population numbers	Not Started			Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Research: Population Surveys	Labor type not yet selected	FY4-FY5 \$50,000
Little Colorado spinedace (Lepidomeda vittata)	2	6.1.2	Determine self-sustaining population structure	Not Started			Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Research: Population Surveys	Labor type not yet selected	FY4-FY5 =\$50,000
Little Colorado spinedace (Lepidomeda vittata)	2	6.1.3.1.1	Determine physical characteristics for spawning	Not Started			Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Research: Habitat Requirements	Labor type not yet selected	FY4-FY5 =\$20,000
Little Colorado spinedace (Lepidomeda vittata)	2	6.1.4	Determine recruitment numbers required for self-sustaining populations	Not Started			Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Research: Population Surveys	Labor type not yet selected	FY04-FY05 =\$40,000

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Little Colorado spinedace (Lepidomeda vittata)	2	6.1.5	Determine minimum population size required to maintain self-sustaining populations	Not Started			Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Research: Population Surveys	Labor type not yet selected	FY4-FY5 =\$40,000
Little Colorado spinedace (Lepidomeda vittata)	2	6.1.6.1	Determine physical characteristics required to maintaining self-sustaining populations	Not Started			Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Research: Habitat Requirements	Labor type not yet selected	
Little Colorado spinedace (Lepidomeda vittata)	2	6.1.6.2	Determine chemical characteristics required to maintain self-sustaining populations	Not Started			Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Research: Environmental Contaminants	Labor type not yet selected	
Little Colorado spinedace (Lepidomeda vittata)	2	6.1.6.3	Determine biological characteristics required to maintain self-sustaining populations	Not Started			Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Research: Population Surveys	Labor type not yet selected	FY4-FY5 =\$50,000
Little Colorado spinedace (Lepidomeda vittata)	2	7.2	Rear and supply fish for recovery purposes	Ongoing Current	FY 1995 - FY 1999		U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Management: Propagation	Labor type not yet selected	FY4 to FY10 \$70,000 As of FY 2007, refugia populations for stock established at Flagstaff Arboretum, Grasslands Wildlife Area and by fall of 2007 at Winslow High School.
Little Colorado spinedace (Lepidomeda vittata)	3	8.1.1	Outreach efforts with Arizona	Not Started			Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Other: Information and Education	Labor type not yet selected	FY4-FY10 =\$35,000

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Little Colorado spinedace (Lepidomeda vittata)	3	8.1.2	Outreach efforts nationally	Not Started			U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Other: Information and Education	Labor type not yet selected	FY4-FY10 =\$7,000
Little Colorado spinedace (Lepidomeda vittata)	3	8.1.3	Outreach efforts in local communities where spinedace occurs	Not Started			Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Other: Administration	Labor type not yet selected	FY4-FY10 =\$7,000
Little Colorado spinedace (Lepidomeda vittata)	3	8.1.4	Coordinate communications among federal, state, and local community efforts	Not Started			Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Other: Administration	Labor type not yet selected	FY4-FY10 =\$7,000
Little Colorado spinedace (Lepidomeda vittata)	3	8.2.1	Inform scientific community through outreach efforts	Not Started			Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office	Other: Information and Education	Labor type not yet selected	FY4-FY10 =\$7,000
Little Colorado spinedace (Lepidomeda vittata)	3	8.2.2	Inform professional community at meetings	Not Started			Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Other: Information and Education	Labor type not yet selected	FY4-FY10 =\$7,000

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Little Colorado spinedace (Lepidomeda vittata)	3	8.2.3	Inform by giving presentations at meetings	Not Started			Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Other: Information and Education	Labor type not yet selected	FY4-FY10 =\$7,000
Little Colorado spinedace (Lepidomeda vittata)	3	8.2.4	Publish research findings in professional journals	Ongoing Current	FY 2000 - FY 2004		Arizona Department of Game and Fish, U.S. Forest Service, U.S. Fish and Wildlife Service, AZ Fisheries Resource Office, U.S. Fish and Wildlife Service, AZ Ecological Services Field Office	Other: Administration	Labor type not yet selected	FY4-FY10 =\$7000 See Bryan et al. (2002).